SPATIOTEMPORAL CLUSTERING ANALYSIS OF DENGUE INCIDENCE IN BANGLADESH

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Background and Aims: There has been little research into the spatial distribution and clustering of dengue in Bangladesh, where dengue is endemic and occurring every year since 2000. This study examined the spatial distribution of dengue at district level and identified the district with a high relative risk of dengue in Bangladesh, using geographical information system techniques.

Methods: Data on monthly confirmed dengue cases in each district from January 2000 to December 2009 were provided by the Directorate General of Health services, Dhaka, Bangladesh. Relevant population data and electronic boundaries of each district were obtained from Bangladesh Bureau of Statistics. We identified the spatiotemporal clusters of dengue across districts using SaTScan software. The output from SaTScan was merged into the attribute table to map the spatiotemporal clusters using MapInfo professional.

Results: The results indicate that the Dhaka district had the highest risk of dengue incidence from January 2000 to December 2004 (RR = 80.39). During January 2000 Khulna district and 14 other districts of the southern part of Bangladesh were identified as secondary clusters.

Conclusions: There was a notable spatial difference in relative risk of dengue cases at the district level in Bangladesh. Some districts had significant clusters of high risk for dengue. The socio-environmental determinants of the geographical difference of dengue incidence should be addressed in future research.